Truth Tracking Update

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Joint EIC detector / fsPHENIX simulation meeting

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analysis/ForwardTracking ⟹ coresoftware/simulation/g4hough/*PHG4TrackFastSim*

- This is a follow-up of our SpinFest2016 work.

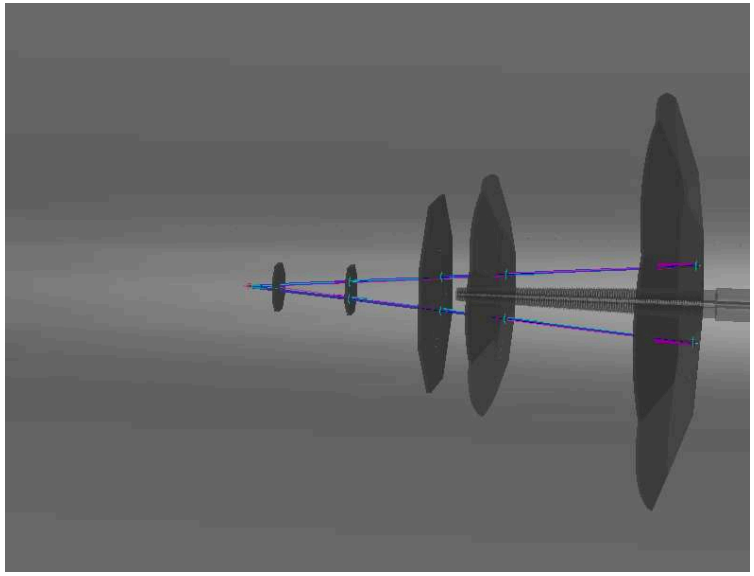
- Truth information tracing:

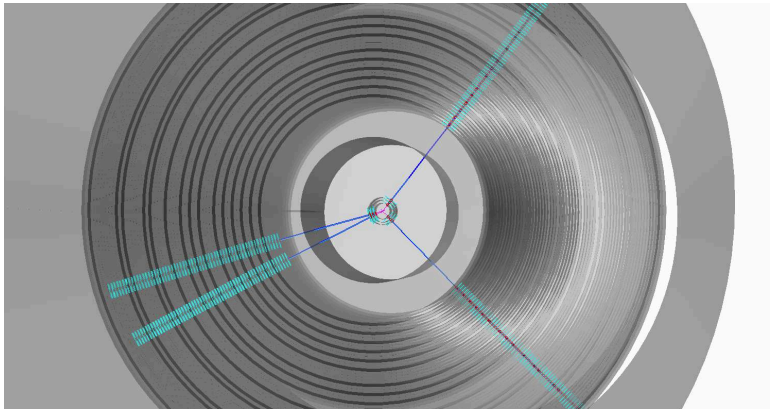
New version of *SvtxTrack*: *SvtxTrack_FastSim*. add two methods to *SvtxTrack*. Need this to trace truth info in multi-track simulations. Making the complete Track→Cluster → Cell → PHG4Hit chain is complicated and beyond the scope of this code.

```
+  virtual unsigned int get_truth_track_id() const {return UINT_MAX;}
+  virtual void set_truth_track_id(unsigned int truthTrackId) {}
```

- Generalized. Not FGEM only. More versatile.

Jin suggest g4hough may be a better place.





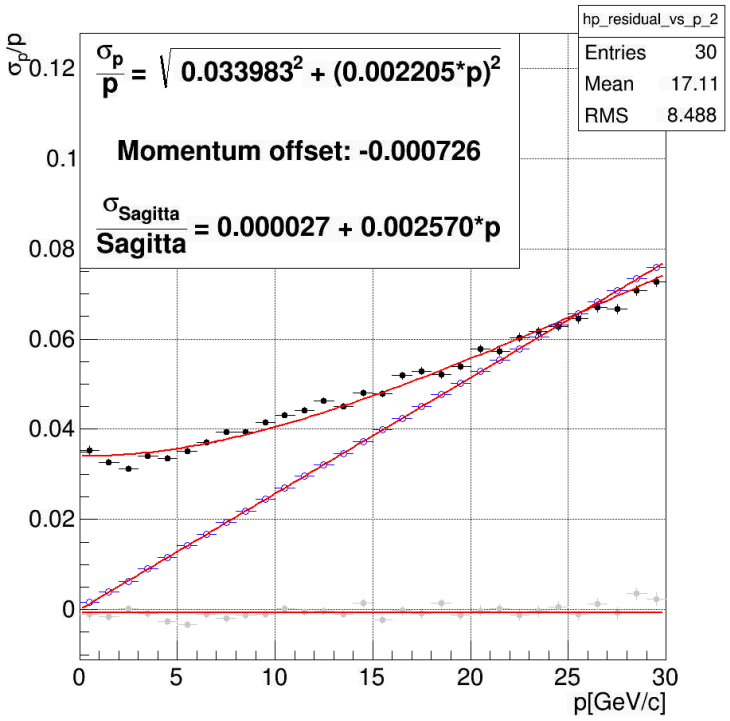
Switches

```
PHG4TrackFastSim* kalman = new PHG4TrackFastSim("PHG4TrackFastSim");
kalman->Verbosity(0);

kalman->set_use_vertex_in_fitting(true);
kalman->set_vertex_xy_resolution(50E-4);
kalman->set_vertex_z_resolution(50E-4);

kalman->set_detector_type(PHG4TrackFastSim::Vertical_Plane); // Vertical_Plane, Cylinder
kalman->set_phi_resolution(50E-4);
kalman->set_r_resolution(1.);

kalman->set_mag_field_file_name("fieldmap.root");
kalman->set_mag_field_re_scaling_factor(1.);

kalman->set_pat_rec_hit_finding_eff(1.);
kalman->set_pat_rec_noise_prob(0.);

std::string phg4hits_names[] = {"G4HIT_FGEM_0","G4HIT_FGEM_1","G4HIT_FGEM_2","G4HIT_FGEM_3","G4HIT_FGEM_4"};
kalman->set_phg4hits_names(phg4hits_names, 5);
kalman->set_sub_top_node_name("SVTX");
kalman->set_trackmap_out_name("SvtxTrackMap");

kalman->set_do_evt_display(false);
```

Evaluation code

analysis/Tracking/FastTrackingEval
analysis/Tracking/FastTrackingEval/macros

Standalone program



This module